News Release

HOLROYD, Neb.—An engineering firm summarized the results of a study designed to provide a more thorough understanding of the groundwater mound in the vicinity of lands irrigated by The Central Nebraska Public Power and Irrigation District during Central’s board meeting on Monday.

Information from the study, conducted by ESI Engineering, Science and Technology, Inc., will assist Central in making water resources management decisions in the operation of its hydro-irrigation project. “Groundwater mound” is the term commonly applied to a supply of water that has accumulated beneath land within and adjacent to Central’s service area as a result of project operations since 1941.

Dale Schlueter of ESI Engineering’s office in Lincoln said the study evaluated groundwater data from 1954—which is identified as the predevelopment date—before widespread groundwater well development—through 2013, and also provided a more detailed evaluation of data since 2000.

Central’s Natural Resources Manager Mike Steinke reported that Lake McConaughy was at elevation 3235.6 feet (991,500 acre feet, 56.8 percent of capacity) on Monday. Inflows have been significant due to changes in irrigation practices and shortages of storage water in Lake McConaughy. It’s expected that the mound is currently “at or near its maximum volume.”

The mound is very sensitive to relatively small changes in either of those factors, he said. “The data indicates significant changes occur to the mound when there are even small changes in ET or diversions of water into the area. It appears that even small reductions to current surface water diversions would lead to slow declines in the groundwater mound.”

Schlueter said the study determined that evapotranspiration (ET), which is the use of water by crops and other vegetation, and diversions of water into the irrigated area are the primary factors in the mound’s size, shape and volume. “The mound is very sensitive to relatively small changes in either of those factors,” he said. “The data indicates significant changes occur to the mound when there are even small changes in ET or diversions of water into the area. It appears that even small reductions to current surface water diversions would lead to slow declines in the groundwater mound.”

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Central’s Natural Resources Manager Mike Steinke said the study reinforced the District’s conclusion that the area’s groundwater supplies currently “are right on the edge of sustainability, a critical point where the mound is no longer rising and some areas are experiencing a slow decline. The eastern part of the irrigated area is perhaps at more at risk of future decline.”

The general long term trend up to 2000 was an increasing total groundwater mound volume, with occasional periods of decline. The early 2000s brought six consecutive years of decline followed by a gradual recovery until 2012 when another significant decline occurred. The mound grew most rapidly during the 1970s, before the greatest increases in registered wells and widespread use of center pivots.

In general, the groundwater mound in the western part of Central’s service area—the area surrounding the E65 Canal and Divides Reservoir—has grown slightly and at a more constant pace. The area also has the lowest density of groundwater development within the study area. The mound in the middle reach of the Phelps Canal north of Holdrege has been observed to have experienced more fluctuation over the years than is no longer increasing.

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Central civil engineer Cory Steinke said the study reinforced the District’s understanding that the mound is a very complex system that is influenced by many factors.

“The study’s focus is on what has happened to the mound over time, not necessarily on why these changes have occurred,” Steinke said. “Many factors have an effect on the mound, from our customers’ on-farm irrigation efficiency and Central’s conservation efforts to allocations of water by crops and other vegetation.”

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The board authorized the next phase for construction of the Jutzi Reservoir 1 hydroplant 3 regulating structures, and 2 pumps. Also at Monday’s board meeting:

The board accepted bids totaling $88,320 from Platte Valley Auto Group of Lexington for the purchase of a sedan, two 1/2 ton pickups, and a 3/4 ton pickup.

The board accepted a $762,089 bid from Crane Sales and Service of Omaha for the purchase of a mobile crane.

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